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Delaware Medical Journal

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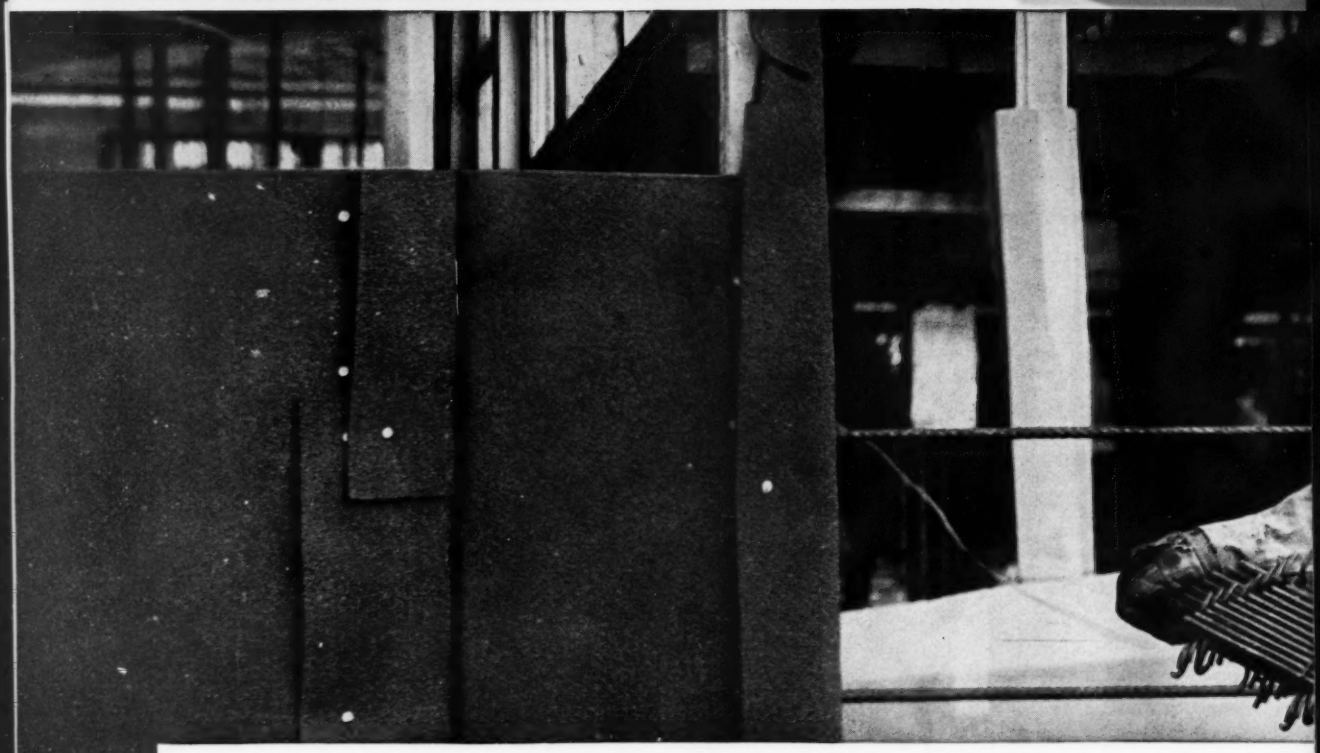

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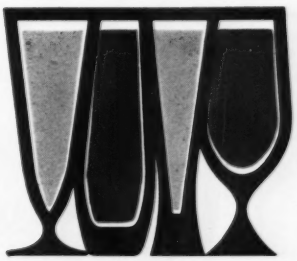

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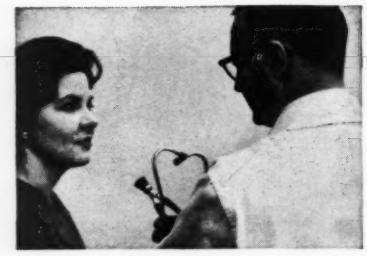

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MULTIPLE VESICO-COLIC FISTULAE DUE TO DIVERTICULITIS

Multi-Stage Surgical Cure

• Vesico-colic fistula is a most distressing lesion. The discharge of feces and gas per urethra and of urine per rectum produce profound psychological effects. These are superimposed on the disability caused by the etiologic disease process and by the presence of the fistula itself.

HAROLD S. RAFAL, M.D.

The description of the first case of vesico-intestinal fistula has been ascribed to Praxagoras in the second century. In 1858, Jones reported a fistula secondary to diverticulitis proven at autopsy. About the same time colostomy was used for treatment . Sir Harrison Cripps' monograph in 1885 was a classic and recognized inflammation as a causative factor in fistula formation. Since then the volume of literature on the subject has constantly grown.

Etiology

An excellent summary of etiologic factors from collected cases was given by Ferrier. Their valuable reports are those of Sutton,[3] Cripps,[1] and Higgins.[4] Ferrier's summary is as follows:

1. Congenital
2. Traumatic
   1. Foreign Body
   2. Surgery
   3. Labor
3. Inflammatory:
   1. Diverticulitis of bowel
   2. Appendicitis
   3. Ulcerative colitis, amoebic
   4. Tuberculosis of bowel or peritoneum
   5. Pelvic inflammatory disease
   6. Abscess of prostate or Cowper's gland
   7. Diverticulitis of bladder, with or without stone
   8. Lesions due to actinomycosis
   9. Lesions due to typhoid
   10. Lesions due to syphilis
4. Malignant

Dr. Rafal, F.A.C.S., a diplomate of the American Board of Surgery, is attending chief of surgery, Memorial and Wilmington General Hospitals and assistant in surgery, St. Francis Hospital, Wilmington.

With modern advances in medicine, the overwhelming majority of vesico-colic fistulae are caused by diverticulitis of the colon or malignancy of the bladder or colon.

Incidence

The true incidence of fistula formation is somewhat difficult to ascertain since the larger series come from larger clinics. Such series prove to be "loaded" with more complicated cases. For example, Mayo and Blunt[5] reported 202 cases of proven diverticulitis with 46 patients having fistulae between sigmoid and bladder (22.8 per cent).

Most series report an incidence of 5-10% in patients at operation. An estimated incidence of approximately 2% of all patients with diverticulitis were reported as having fistulae by Welch, Allen and Donaldson,[6] in a series reported from the Massachusetts General Hospital.

The incidence of fistula by age generally parallels that of diverticulitis, being most frequently encountered between the ages of 50-70. Most authors agree that the incidence of fistula is greater in males than females in a ratio (5-1) greater than the incidence of diverticulitis in the two sexes, 5, 7, 8. The mechanical barrier of the uterus, interposed between sigmoid and bladder, probably accounts for this difference.

Symptomatology

The symptoms of colo-vesical fistula are referable to the two organ systems involved. Many patients first present themselves with symptoms of "cystitis." Occasionally, patients have no symptoms referable to the bladder.

Pneumaturia and fecaluria are pathognomonic of a fistula between the two organs. Pneumaturia is a reliable finding though not an absolute one. It may result from previous introduction of air via catheter or cystoscope. Especially in diabetics, gas forming organisms can infect the urinary tract.

Pain is frequent, occasionally genital or perineal, but usually supra-pubic. Hematuria is common, more so than the passage of urine from the rectum.

The symptoms of diverticulitis preceding those of the fistula can usually be elicited.

Diagnosis

Cystoscopy is the most reliable method, though visualization of the fistulous orifice is frequently impossible. More frequently, inflammation and edema is seen in the fundus, often on the left side. It may mimic malignancy at cystoscopy, and even biopsy is often suspicious of low grade bladder cancer.

Cystograms may help to demonstrate the fistula. Barium enema x-ray study has been reported "as being un-reliable in outlining the tract. They showed a fistula in only one of 17 cases reported by Barnes and Hill, but are important in establishing the basic diagnosis of diverticulitis."[9] Dye studies are occasionally helpful.

Treatment

Definitive treatment is always surgical. If relatively uncomplicated, excision of the fistula and resection of the area of diverticulitis with closure of the bladder defect and restoration of colon continuity, in one stage, is the procedure of choice. However, each case must be individualized and and one or more operative procedures used as dictated by the specific case at hand.

In the case report which follows, the patient had two fistulae. The larger fistula was between the fundus of the bladder and the recto-sigmoid. The second fistula, at first occult and possibly non-functioning, was between the distal rectum and the base of the bladder.

A three stage operation was required to effect cure.

First operation: Trans-abdominal; excision of fistula, closure of bladder defect, diverting closotomy, closure of rectal stump.

Second operation: Trans-sacral excision of lower fistula, closure of defect of bladder and of rectum.

Third operation: Restoration of colon continuity by low anterior anastomosis.

Case Report

A white man, age 68, married, was admitted to the Wilmington General Hospital on 2-10-60 with the chief complaint of passage of gas and feces per urethra and passage of urine per rectum. These symptoms had been present for about two years, and were preceded by hematuria.

At that time, cystoscopy had revealed a tumor of the urinary bladder which had been diagnosed microscopically as a papillary carcinoma of bladder, Grade #1. His symptoms continued for two years and again he presented himself for treatment.

Past History

The past history revealed that he had been treated, in Jan. 1958, for a fracture of the second cervical vertebrae without sequelae or complications. At that time, it was revealed that the patient was diabetic.

He gave a vague history of having been operated several years previously by the rectal route, for "pockets of the colon" which had caused severe constipation for years. He also knew that he had gall stones. In addition, the patient gave the history of having had a "heart attack" 13 years previously for which he had been hospitalized and for which he had since been taking "heart pills."

Physical examination revealed a well developed and well nourished elderly man in no acute distress, with no abnormal findings except as follows:

Rectal examination revealed induration of the anterior wall of the rectum just above the superior border of the prostate. Subsequent, sigmoidoscopy examination revealed an area of inflammation corresponding in location to that described on rectal examination. The microscopic report on tissue removed as biopsy material from this area revealed, "acute and chronic inflammation of rectal mucosa, and adjoining fistulous tract."

Cystoscopic examination revealed a "vesico rectal fistula located behind right ureteral orifice. Large, benign non-obstructing prostate." A cystogram was performed but failed to reveal any definitive extravasation of dye outside the bladder.

However, the barium enema revealed that "at a point which corresponds to the distal sigmoid, just above the recto-sigmoid junction, barium was seen to extravasate outside of the colon and passed through a fistulous tract into the bladder. There are multiple diverticulae seen throughout the entire sigmoid colon and as the colon was filled more barium was seen to enter the bladder by way of the previously mentioned fistulous tract. We are unable to see any definite evidence of a carcinoma of the colon in the area where the fistulous tract arises but it is conceivable with the multiple diverticulae that the fistulous tract could be either caused by a perforated diverticulum or the carcinoma of the bladder which has perforated the bladder wall and formed this fustulous tract to the sigmoid.

"The remainder of the colon was grossly normal, although there was a considerable amount of fecal material and fluid retained. The calcified gall stone in the right upper quadrant is again visualized."

An intravenous pyelogram did not contribute any diagnostic data nor did it visualize the fistula.

The note written by the surgical consultant stated, "Despite history of previously proven papillary cancer of bladder two years ago, there is a long standing history of colon symptoms preceding that. I believe, therefore, that the origin of the fistula is more likely to be diverticulitis than malignancy, especially since cysto-

ACKNOWLEDGEMENTS

The author expresses the deepest gratitude to Dr. Albert Gelb, Dr. Norman L. Cannon, and Dr. Charles Levy for their major contribution in the management of this patient and in their generous aid in the preparation of this report.

scopic revealed no present tumor in the bladder."

"Recommendation: Bowel preparation and exploration. Whether or not disease process can be managed in one or multiple-stage procedures will depend on operative findings."

Medical consultation was requested and patient considered to be capable of withstanding the proposed surgery.

Laboratory Data

Urinalysis normal except: WBC 18-20/H.P.F. RBC 0-2/H.P.F.; CBC and serology normal; feasting blood sugar 110 mgms.%; feasting sugar 159% mg.; VDRL —non-reactive.

After all data were reviewed, it was decided prior to operation, that the area of the rectum which showed inflammatory reaction could not be caused by the fistula itself since this had been clearly demonstrated to be in the distal sigmoid colon.

The patient was prepared with neomycin, purgatives, and high colonic irrigations. A Cantor tube was passed preoperatively.

On 2-25-60 a cystoscopy was performed and catheters inserted into the ureters and a Foley catheter passed through the fistulous tract and inflated.

After entering the peritoneal cavity, the following pertinent findings were noted:

Findings

A large calculus, measuring about 3 cms. in diameter, was present in the gall bladder. No enlarged para-aortic nodes were found. The catheters were palpable as they traversed the ureters and the fistulous tract. There was extensive diverticulitis of the sigmoid colon and recto-sigmoid, with dense adhesion formation, induration and fibrosis. Two inches above the level of the peritoneal reflection of the cul-de-sac there was a fistulous tract present between the rectosigmoid and the posterior aspect of the bladder. After mobilization and excision of the fistulous tract, the cul-de-sac was exposed for investigation. A fecalith was found impacted directly at the point of the peritoneal reflection in the cul-de-sac, lying in the mid line. When the fecalith was removed it exposed the upper end of a sinus tract which, beginning at the cul-de-sac terminated in the rectum, just above the upper border of the prostate. This was demonstrated by passing a probe without difficulty through the tract. This tract was distinct and separate from the fistula lying within the peritoneal cavity. Therefore, it was established that there were two separate and distinct tracts. After resection of the intra-peritoneal fistula between the rectosigmoid and intra-peritoneal bladder, indigo-carmine dye was injected into the bladder, under pressure, through a sepra-pubic cystotomy.

The post-operative course was benign. His diabetic status was readily managed with regular insulin.. The patient tolerated a full diabetic diet on the fifth post-operative day, after which his diabetic status was controlled by Orinase. The patient was discharged on the twenty-first post-operative day, with the supra-pubic cystotomy sinus closed, voiding easily per urethra. His incision healed without evidence of infection or herniation.

The patient was followed as an out patient. On 3-25-60 he described a slight amount of urinary soiling through his supra-pubic tract and on occasion discharge of mucus per rectum.

On 4-25-60, the patient was delighted about his feces-free urinary stream. However, he described a discharge of "cloudy water" from his rectum during urination. Though he would sit to empty his bladder, he was certain that this discharge was from the rectum. Occasionally, on arising in the morning, he would note that his bed was wet. On examination, there was "still induration about the anterior rectal wall." The office note stated, "His symptoms are highly suspicious of a new or old fistula orifice between bladder and defuctionalized colon which, in some way, may have been overlooked at the initial procedure."

Another Fistula Visualized

Accordingly, the patient was re-admitted on 5-2-60. The following day, during cystoscopy, another fistula was visualized and a catheter was passed through the rectal orifice into the bladder. The "fistula was visualized on the floor of the bladder behind trigone. Communicates with rectum obliquely to just behind the prostate."

The low lying location of this fistulous tract promised to make repair through the abdominal route exceedingly difficult, if not impossible. Repair of the first fistula, which was more accessible in location, had been attended with considerable technical difficulty.

It was decided, therefore, to attack this fistula through the trans-sacral route.

On May 5, 1960, this was accomplished with remarkable ease. Excision of the fistula and repair of the bladder and rectum was rendered simple by the exposure afforded by the trans-sacral exposure.

The surgical pathology report was "rectal fistula."

Post-Operative Course Satisfactory

The patient's post-operative course again was entirely satisfactory and he was discharged from the hospital on the seventh post-operative day with his incision apparently healing. An interesting side-event occurred. The Cantor tube formed a knot spontaneously within the intestine and it had to be removed.

The patient was discharged with an indwelling Foley catheter in place. On the eighteenth post-operative day, while at home, his catheter became "plugged" and he removed it. Following this he voided clear urine per urethra without difficulty. He noted no discharge of urine from the rectum. His only complaint was of "soreness" about the posterior incision where a small area of granulation tissue was present. The digital examination revealed no abnormalities of the rectum. The colostomy was functioning well with irrigations.

On 7-11-60, he was seen during an office visit. At that time he complained of pain having a sciatic nerve distribution in the left lower extremity, somewhat relieved by local heat to the buttock area. He stated that this symptom began after his trans-sacral operation. He had no urinary complaints.

On 7-19-60, the patient was re-admitted to the hospital for closure of his colostomy. He was prepared with neomycin and castor oil and irrigations of colostomy and rectal stump. His diabetes was under good control and routine laboratory studies were within normal limits.

Third Operation

On 7-21-60, the third operation was carried out. The colostomy was mobilized from the anterior abdominal wall and a segment excised to afford normal colonic tissue for the anastomosis. The distal rectal stump was located in the hollow of the sacrum, mobilized, opened and refreshed. An end-to-end low anterior anastomosis was performed with considerable difficulty.

Again the patient made an excellent peritoneal recovery. However, the post-operative course was marred by an infected hematoma of his incision and a carbuncle on the posterior aspect of his neck which required cruciate incision.

He was discharged on 8-1-60 with his incision healing by secondary intention, having normal stools per rectum and passing clear urine per urethra without difficulty.

The patient was examined in the office on 8-29-60. At this time he gave the history of having fever up to 103° in the afternoon. He had one episode of diarrhea following a "dose of salts." Recurrent pain in the left leg along the sciatic distribution accompanied by limping was also present. Treatment by his personal physician, resulted in an improvement in symptoms. He had an incisional hernia of the crossing vertical and transverse incisions noted at this time. There was pinkish serum on the examining finger

indicative of bloody material in the rectum though there was no evidence of induration.. There was no costo-vertebral angle tenderness and his urine was clear.

The next office visit occurred one month later. Four days previously, a heavy purulent discharge had taken place from the sacral area. After this the pain in his left leg virtually disappeared. Rectal and bladder function were entirely satisfactory to the patient. Pus was expressible from the sinus tract in the sacro-perineal area. No mass was palpable in the cul-de-sac on rectal examination. Because of the possibility of osteomyelitis of the sacrum, x-rays were ordered. This was reported as follows: "Examination of the sacrum in the AP and lateral projections shows evidence of surgical removal of the coccyx. The architecture of the sacrum is within normal limits on this study and there is no definite destructive lesion present."

On 10-24-60, the patient had two sinuses draining a small amount of pus posteriorly and mild discomfort caused by protrusion of a large ventral hernia. Medication was prescribed for marked constipation.

Comment

Vesico-colic fistula caused by perforative diverticulitis is not rare. However, instances of multiple fistulae are rare. Also, fistulization between the extra-peritoneal rectum and the bladder is exceedingly uncommon. The presence of a combination of both these rarities makes the case herein reported most unusual.

The author has personally reviewed more than 270 detailed case reports in 18 articles in the English language literature. In these he found no case of multiple fistulae and no case of fistula between the bladder and the extra-peritoneal rectum due to diverticulitis.

Fistulae reported in this low lying position were almost all due to trauma, usually surgical.

It is highly probable that a more thorough review of the literature would reveal one or more similar cases. Among the articles examined were several reviews of the literature. However, the rarity of such a lesion may be more apparent than real. A clue may be present in the statement made by Barnes and Hill[10] in their report of 31 cases of intestino-colic fistula. "Of the 9 patients in this series in who one stage repair was performed, 4 either suffered a recurrence or presented a second fistulous tract which had not been recognized at the time of operation."

Attention is drawn to the fact that in the case herein reported an identical statement would have been applicable after the first operation had it been a one-stage procedure.

Rare Surgical Correction

The surgical correction via the trans-sacral route, as employed in this case, was rarely employed.[11]

In the opinion of the author, adequate surgical correction of a fistula between the rectum at the level of the prostate and the bladder at the level of the inter-ureteric ridge would be virtually impossible by the trans-abdominal route. It would seem that the only latitude of choice rests between the perineal and trans-sacral approaches. The ease of exposure and maneuver made possible by the trans-sacral approach in this case leads the author to endorse its employment.

At the time of the first procedure, when the larger, more cephalad fistula was closed, the surgeon undoubtedly failed to detect the presence of the second, more caudal fistula. The suspicion that a second fistula might be present was entertained and efforts were made to detect it. These efforts consisted of the injection of indigo carmine dye solution into the bladder via a supra-pubic tube after closure of the larger, more obvious fistula had been accomplished. At this point in the procedure, the distal transected rectum was open to inspection and the opening of the fistulous tract at the cul-de-sac which entered the rectum above the prostate, was also in view. No dye was seen at any point in the operative field.

Though the sequence of operations employed was correct, this was, perhaps, fortuitous, and ascribable more to good fortune than wise management.

After intensive review of the surgical findings and follow-up notes, the following reconstruction of events is offered.

There were two fistulae. One was large, and *functioning*, between the posterior aspect of the fundus of the bladder and the recto-sigmoid. The second, probably *non-functioning* at the time of the first operation was between the lower rectum and the base of the bladder just above the interureteric ridge. It is hypothesized that the latter was non-functioning because a fecalith was impacted in it, this fecalith being the one found at the bottom of the cu-de-sac at the time of the first operation, the removal of which revealed a tract leading down to the lower rectum. It was decided that this tract was "peritoneo-rectal sinus," a decision based on the process of elimination, or more candidly, on desperation caused by lack of any better explanation. Actually, the surgical team had never encountered, nor could they conceive of, a fistula between rectum and peritoneal cavity which would not result in abscess formation. Nevertheless, it was the presence of this fistula which led the surgeon to avoid restoration of intestinal continuity, a decision which subsequent events proved correct, albeit not attained through wisdom.

Following the first operation, the appearance of urine through the rectal stump occurred rather late, and appeared to increase in volume after removal of the supra-pubic tube and Foley catheter. This is as would be expected, since the pressure within the undrained bladder would increase and force more urine through the fistula tract. The following sequence of events is offered as an hypothesis: (1) The second fistulous tract was originally occluded by a fecalith. This tract was unknowingly entered through *only one wall of the tract* at the time of the first operation. (3) The fecalith was removed, through this lateral hiatus in the fistulous tract. (4) Once the fecalith was removed, the fistulous tract was re-established. (5) The fistula did not immediately conduct urine because of bladder decompression, thus allowing sealing off of the lateral hiatus and of the cul-de-sac and thus preventing peritoneal leakage of urine. (6) When bladder decompression was discontinued, urinary leakage into the defunctionalized rectal stump became progressively more apparent.

Sumary

1. A report is submitted of a rare case of multiple vesico-colic fistulae due to diverticulitis.
2. The literature is reviewed and the rarity of this type of lesion is documented.
3. The sequence of surgical maneuver employed to correct this condition is described.
4. An hypothesis is offered in an effort to explain the failure to demonstrate, at the first operation, the presence of more than one fistula.
5. The employment of the trans-sacral approach to correct low-lying vesico rectal fistula, such as herein described, is endorsed.
6. In any case in which one fistula has been demonstrated, every effort should be made, before and during operation, to reveal the presence of another fistula.

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THE INFLAMED EYE

Diagnosis and Treatment

• **The inflamed eye may indicate a mild local condition, or a serious ocular or systemic disorder. Early therapy and proper laboratory studies, based on an evaluated study of the patient, can save both time and expense and avoid permanent ocular damage.**

WILLIAM H. KRATKA M.D.

A red eye may result from local or systemic conditions. Some may be serious and result in loss of vision if not diagnosed promptly and treated properly (definitively).

Acute catharrhal conjunctivitis (the commonest form) is a benign and self-limiting infection; however, this is not the only cause — as will be discussed later. Failure of response to routine therapy indicates complications and a need of further studies.

Signposts

The following findings suggest serious diseases:

1. Vision—markedly reduced acuity.
2. Pain—severe (iritis, glaucoma)
3. Opacities—intraocular deposits and corneal infiltrations
4. Pupillary irregularity
5. Limbal redness
6. Elevated pressure—difference in tactile resistance (or tonometric)
7. History—Familial glaucoma or contact bacterial infection
8. Therapeutic response—(failure of adequate response to 3 to 4 days therapy—bacterial or allergic

Types Of Conjunctivitis

Generally, conjunctivitis is the result of bacterial, viral, allergic, or of a mixed indeterminate etiology.

Bacterial conjunctivitis is usually indicated by a muco-purulent discharge, plus involvement of the hair follicles and glands of the lid margins. Superficial hyperemia is more marked in the cul-de-sac than at the limbus.

Allergic conjunctivitis frequently has a bluish-gray "milky" appearance, plus the presence of "cobblestone" flattened papilla in the cul-de-sacs and tarsal conjunctiva. There is frequent lid margin involvement plus pruritus.

Indeterminate or mixed conjunctivitis results usually from a secondary infection superimposed on an allergic process (or vice versa).

Indicator Of Many Diseases

Serious systemic disease may first appear in the conjunctiva, for example:

Lues, tuberculosis, leptotrichosis, lymphopathia venereum, tularemia, gonococcal or diphtheritic infection, thyrotropic disorders, and trichinosis.

Serious ocular disease may also need to be differentiated from the red eye of conjunctivitis—for example: acute iritis, acute glaucoma, scleritis, and keratitis. Mis-diagnosis and delay in proper treatment may cost the patient his vision.

Even minor trauma may produce serious ocular damage. For example: traumatic iritis, cataract, intra-ocular hemorrhage, secondary glaucoma, retinal detachment, or macular damage.

Treatment

Treatment of infectious types of conjunctivitis, susceptible to antibacterials, is best performed topically. This prevents the sensitization of the patient and the development of drug-fast bacteria.

Allergic conjunctivitis is best treated

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KERATO CONJUNCTIVITIS — DIAGNOSIS AND TREATMENT

Patient	*Diagnosis*	*Treatment*	*Smear and Culture*	*Result*
1. Priest, 57 1/26/60	Dendritic ulcer plus Fuch's Dystrophy	Cautery Antibiotics Vitamins Cortisone (Aggravation)	Negative for bacteria Etiology Virus	Cleared 7 months
2. Male, 35 7/27/60	Kerato-conjunctivitis plus uveitis - Referred prev. 6 mos. (treated topically only)	Hospitalization Typhoid Rx. Cortisone & Declomycin	Staph albus coag. neg. Sens. to Tetra & Pen.	Cleared in 4 weeks on specific therapy
3. Male, 31 12/5/60	Kerato-conjunctivitis secondary to acid	Terracortril & Penicillin	Staple albus coag. neg. Sens. to Tetra. & Pen.	Cleared 1 wk. later
4. Male, 23 4/27/60	K-C plus iritis 1 wk. duration	Aristocort Declomycin Piromin-therapy topical Rx.	Staph Alb. coag. neg. Sens. to Chloromy. & Pen.	Improved 20 days
5. Male, 57 9/17/60	K-C plus recurrent dermatitis (rag and grasses)	Chloromycitin Hydrocortisone Terramycin	Staph. alb. Coag. neg. Sens. to Pen. & Tetra.	Cleared 7 weeks
6. Male, 30 7/25/59	Corneal ulcer & F.B. Allergic follicles	Antibiotic Antihistamine	Neg. dust Poss. grasses	Cleared 3 weeks
7. Male, 36	Punctate K-C	Achro in oil slow plus Terracortril	Lab. Neg.	Cleared 9 days
8. Male, 18	Punctate K-C	Ophthocort.-poor achro. in oil (cleared)	Staph. Alb. Coag. Neg. Resist. Pen. & Tetra	Cleared 10 days from specific therapy
9. Female, 62	AC- Conj.	neg. to Neomedral & Gantrisin Terracortril (cleared)	Staph. alb. coag. neg. Sens. to Penn. & Tetra.	10 days clearance after specific therapy
10. Male, 24 12/28/60	Vernal type Conj.	Hydrocortisone and Antihistamine	Neg.	Clear 1 week
11. Male, 25	K-C plus allergic conj. Sens. to grass and dust	Neodeltef -worse (allergic) Multiple anti- biotics, cortisone antihistamine	Neg.	Cleared 3½ months
12. Male, 39	K-C plus allergic Blepharo-conj. Welder's flash allergic history	Antihistamine Cortisone Antibiotics	Staph. Alb. Coag. Neg. Coliform B. Sens. to Neomycin, tetra, stript.	Cleared 6 weeks
13. Female, 29	K-J	Gantrisin, (N.G.) Tetracyn- Cleared	Staph Alb. Coag. Neg. Sens. Tetra.	5 days Cleared

DIFFERENTIAL DIAGNOSIS AND MANAGEMENT OF THE RED EYE

	Acute Bacterial Conjuncti-vitis	*Iritis Under Mydriatic Therapy*	*Acute Glaucoma*	*Hypopyon Corneal Ulcer*	*Epi-scleritis and scleritis*
Only superficial vessels affected	Yes	—	—	—	—
Superficial & deep vessels involved	—	Yes	Yes	Yes	Sector or Diffuse
Pupil	Not affected	Small	Large Shallow Anterior Chamber	Small if secondary iritis	—
Increased Pressure	—	May have secondary glaucoma	Marked	—	—
Opacity	Cornea not involved	Iris and anterior chamber may be hazy	Steamy cornea	Corneal opacity fluorescein staining	May encroach on cornea
Ocular discharge	Yes	—	—	Yes	—
Decreased vision	No	Yes	Yes (rainbows)	Yes	—
Severe pain	—	—	Yes (vomiting)	Yes	—
History	Contagious	Often recurrent	Often hereditary	Often trauma	Often arthritis
Therapy	Anti-bacterials, Sulamyd	Atropine, "Meti" steriods	Pilocarpine, Diamox surgery (?)	Anti-bacterials, Sulamyd	Systemic & topical "Meti" steroids
Prognosis	Self-limited 3-5 days	*May be exrtemely serious without proper treatment*			Self-limited 2-4 weeks

by anti-inflammatory drugs, for example—the "meti" steroids, antihistamines, adrenalin, or astringent solutions. Cold compresses may be helpful.

Serious ocular diseases require prompt diagnosis and both topical and systemic therapy. Bacterial and cellular staining plus proper laboratory cultures and studies are a necessity to insure proper definitive therapy.

Proper antibacterial therapy requires frequent 1 to 2 hour instillations during the day. Antibacterial ointments are especially suitable for associated lid infection and for application at night. Topically instilled sodium sulfacetamide is effective against many types of superficial bacterial infections.

Summary

An inflammed eye may signify serious local or systemic disease. To prevent complications and possible loss of vision, diagnosis and proper therapy must be prompt. Except for benign catarrhal conjunctivitis, definitive antibacterial therapy depends on the laboratory findings. Allergic factors should be considered and tested for when necessary. Failure of response to therapy in 3 to 4 days strongly suggests serious ocular disease.

ABNORMAL ELECTROENCEPHALOGRAPHY IN SOCIOPATHIC PERSONALITIES

• The presence of an abnormal E.E.G. may indicate the patient's susceptibility to difficulties in behavior adjustment.

AYDIN Z. BILL, M.D.

To explain sociopathic personality, innumerable attempts have been made by psychiatrists, psychologists, physiologists, and other workers. Some authors believed that constitutional dynamic factors are essential, while others considered brain damage more important. In many cases inheritance has been described as a definite factor. After a consideration of all the possibilities of sociopathic maladjustment, it seems clear that to try to explain the whole disorder on a pure psychoneurotic basis will not solve the question. However, a study of each patient from a psychobiologic point of view — including constitutional factors — gives us the impression that further advances can be made in this respect. Research into brain physiology, E.E.G. investigations of psychopaths, and attempts to correlate psychopathic personality with certain physiopathological syndromes are all explorations of very recent date.

Some authors showed abnormality in the lining of frontal cortex cells only in a few criminal-type psychopaths. In more recent studies, behavior changes—apparently emotional in pattern—have been described as the result of lesions or irritations of the hypothalamus. These behavior changes ranged from apathy to excitement, manic reaction. In patients with diencephalic pathologic processes, the occurrence of impulsive crying or laughing has been noted. In animal studies it has been shown that electrical stimulation near the fornix in the lateral and dorsal regions of the hypothalamus produces a reaction of violent rage. It is also shown that certain lesions of the hypothalamus produce a chronic change in behavior. Bilateral lesions in the region of the ventromedial nuclei in cats cause previously tame animals to display varying degrees of wildness which is an irreversible state and does not respond to efforts to tame the animal again.

Papez demonstrated a pathway by which emotional impulses could be received and transmitted. He speculated that those processes originating within the visceral brain (rhinencephalon) would add "emotional coloring" to psychic processes in other cortical areas.

Many authors tried to find a correlation between abnormal E.E.G.'s and personality maladjustments. In 1938 Jasper, Solomon, and Bradley observed that 59 per cent of 71 children with behavior disorders yielded ab-

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the result of lesions or irritation of the hynormal E.E.G.'s. In 1940 Strauss, Rahm, and Barrera found that among 44 "behavior problem" children 68 per cent had E.E.G. abnormalities. Their behavior was described as aggressive and hostile, with episodic temper outbursts. Thereafter, a series of papers appeared confirming the high incidence of abnormal E.E.G. findings among sociopathic personalities.

Indicates A Disturbance Of Cerebral Function

An abnormal E.E.G. implies the possibility of some pathophysiologic process in the cortex. As will be seen from the two papers which we have quoted, as well as others, a smaller number of sociopathic patients have normal E.E.G.'s. The implication of normal electroencephalography is the possibility of no pathophysiologic process in the cortex. Both of these implications are on a theoretic level. However, the latter would be considered less likely when the two possibilities are considered, for it is known that such a process may be dormant at the time of recording and therefore will not be apparent on the E.E.G. record. Furthermore, subcortical processes may not be normal, but the E.E.G. may be repeatedly without discernible abnormal activity. Therefore, the electroencephalographic data would indicate to an important degree the presence of abnormal organic processes in the heterogeneous group of disturbances in sociopathic personalities. It can be speculated that these abnormal processes are related to the maladjustment of the patients, that they may indicate the patient's susceptibility to difficulties in behavior adjustment, and that such persons with described abnormal processes may possess less elasticity in their neural limits for withstanding the stresses and strains of the adjustment process.

It is now generally accepted that the electroencephalographic abnormality indicates a disturbance of cerebral function of unknown nature which may be one of the factors contributing to the susceptibility of the individual to environmental pressures. However, these abnormal organic processes should not be considered the only etiologic factor for the behavioral disturbances of the patients. Etiology from a psychiatric point of view always involves a series of factors, such as genogenic, histogenic, chemogenic, and psychogenic in their relationship with each other. Sociopathic personalities reveal a variety of characterological abnormalities. Although they cannot be reduced into simple formulas, these abnormalities may be of minor nature, may remain latent most of the time, or lead to more severe disturbances which force major changes in the individual's life.

A report follows of two patients in the Delaware State Hospital. The two individuals studied are of the same age, same family background, and same personality pattern. Both are still in the Hospital.

Case No. 1

The patient, a 15 year old girl, is the sixth of nine siblings. The two oldest siblings are said to be in good health. The father described his third child as "lazy" for a while, "but now works regularly." The fourth child, is a young man of 22 years of age who frequently has been in trouble with the law. The fifth child is in good health. The seventh sibling is fourteen years old and according to the father is "behind in his school work." The youngest two sons are both in Governor Bacon Health Center.

The patient had difficulty at birth and as a young child, had the measles, many colds and mumps. She continued to wet her bed until she was about four and a half years old. In 1955 she was seen by a doctor for her tonsils. The psychologist who saw her at the time reported that "the doctor did not question the mother for the signs of encephalitis, but said that he possibly could be examined further although the possibility of encephalitis was slight." When she was nine years old, her parents separated and divorced after twenty years of stormy married life. Her mother remarried. There is no history of epilepsy in the family; however, a maternal aunt has had a son in the Delaware State Hospital since 1956. The patient's home environment was not a happy one. The father would continually whip his children, and especially this patient. It is said that if the girl did not get a whipping at night, she would have difficulty in falling asleep being fearful of getting whipped in the morning.

The child's problems started at school when she was nine years old. The school authorities found her difficult to control and — because of her extremely aggressive behavior and her antagonizing

of other children until they started to fight back — she was referred to the Psychologist. The examiner stated that the projective test indicated anxiety and distorted perception of social relationships. Six weeks after this examination, she appeared before the Family Court, who referred her to the Mental Hygiene Clinic. The examination did not reveal any gross evidence of physical and neurological disorder. However, due to her extreme maladjustment in public school, she was placed in a school for delinquents in 1957. Her behavior there was described as being in open conflict with school authorities; also she became increasingly agitated. She was again seen by a psychologist, who suggested her removal from the school because of her inability to modify her behavior. She was again referred to the Mental Hygiene Clinic in 1958 for evaluation to place her in the Governor Bacon Health Center. Until that evaluation was completed, the patient was placed in the Detention Home. As a result of the examinations, no definite diagnosis was given.From the evaluation she was described as a "rebellious, negativistic adolescent who had a fairly emotionally deprived and traumatized childhood." It was decided to place her in a reform school for girls. In that school, with tantrum-like acute episodes of disturbance as well as fighting with other girls, she was extremely difficult to manage. After an attempt to run away from school, she tried to kill herself by hanging. She was seen in the Mental Hygiene Clinic again.

E.E.G. Results

This time an E.E.G. (Electroencephalogram) was performed. Her E.E.G. showed sharp and slow waves at four per second in all leads. Photic stimulation revealed sharpwaves in all leads. These indicated seizure activity as in epilepsy and she was placed on Dilantin and phenobarbital although she never had a seizure. However, her behavior came to such an extreme that it was felt phenobarbital made a "paradoxic" reaction and her treatment was switched to Chlorpromazine. A short while later, she was committed to the custody of the Youth Service Commission of Delaware and after psychiatric evaluation she was committed to the Delaware State Hospital.

During her course in the State Hospital a second E.E.G. was performed which showed sharp waves, spikes, and slow waves at 3 to 5 per second in all leads. The patient was investigated for the possibility of temporal lobe epilepsy, but the findings were not very encouraging. After neurological examinations it was felt that her behavior problems resembled those which are seen in post encephalitic personality and behavior disorders. From the psychiatric point of view, because of the abnormal E.E.G.'s, the possibility of organic brain involvement or damage as a result of measles, mumps, or some other childhood disease was considered. However, in view of the fact that 10 per cent of normal people have abnormal E.E.G.'s and that this type of person usually does not adjust well where home environment is bad, the official diagnosis was given as personality trait disturbance, emotionally unstable personality. Under a course of Chlorpromazine, the patient at the present time is functioning well in an open ward.

Case No. 2

This is a 16 year old boy who has been in this hospital since March 13, 1959. He is the ninth of 11 siblings. The first three children died in their early years. One maternal uncle was admitted to the Delaware State Hospital because of alcoholism. A maternal first cousin was a patient of this hospital with a diagnosis of schizophrenic reaction, acute undifferentiated type. Another cousin has been in the Hospital for Mentally Retarded Children at Stockley for nine years. It was also reported that the boy's father was a rather excessive drinker until his heart attack. He is described as abusive to his family when drinking. The mother was quite ill while she was carrying him as she had a severe kidney condition. During the last five pregnancies, the mother has been troubled with convulsions both before and after delivery of the babies.

There was nothing unusual regarding the patient's birth and early development. He was toilet trained very early, at about 8 months. He was breast fed until 10 months and never wet the bed. When he was 3 years of age, he was taken acutely ill with a headache, nausea, and stiff neck. He had a very high fever and was hospitalized with a diagnosis of poliomyelitis. He stayed in the hospital for two or three weeks. Three months after his release from the hospital, he was rehospitalized due to a seizure characterized by falling, unconsciousness, rolling of eyes, and frothing at the mouth. No convulsions of extremities were described. The convulsions lasted a short while, then subsided. During the child's course in the hospital no other seizure was seen. The patient was thoroughly investigated; however, no pathology was found except some residual weakness in the right leg due to the polio.

After starting school, the boy had measles, chicken pox, whooping cough, and bronchitis. In school he had serious difficulties. All of his teachers complained about his behavior in classes. One of them refused to allow him to enter the class. The school nurse recommended his hospitalization for diagnostic purposes. After his studies, he was placed on tranquilizers. On one occasion he hit his mother, then started to cry saying he was sorry. Later on he became uncontrollable in the home and stated that he was going to kill all the family. He grabbed

a candlestick and tried to hit his father over the head. After this episode he was taken to the Family Court. Two weeks later he was committed to the Delaware State Hospital. During his mental examination at the time of admission, he, the patient, was described as being untidy and sloppily dressed. He made frequent negativistic remarks, threatened not to say anything, was somewhat irritable, and got upset easily, but in general, he cooperated in the examination. Most of the time he appeared to be quite hostile. He was fully and correctly oriented in all three spheres. His memory was intact. He was quite emotionally unstable. There were no genuine hallucinations or delusions. He appeared to be hostile towards everybody except his mother. He was especially hostile towards his father, as he blamed him for beatings without any reason when the father was drunk. He felt that he was being detained at the State Hospital without a reason. On admission a tentative diagnosis was given of sociopathic personality disturbance, anti-social reaction. (An interesting point is that exactly the same admission description of this patient, word for word, only changing masculine to feminine, would fit perfectly our first case, including the admission diagnosis.)

After admission, an E.E.G. (Electroencephalography) was performed which revealed many slow waves at 5 per second in all leads. The E.E.G. was repeated one week later and this second E.E.G. revealed the same pattern, that is, routine 16 lead E.E.G. was slow in all leads. Sleep E.E.G. was normal.

Psychological examination described Case No. 2 as a severely emotionally disturbed youngster who was probably schizophrenic and probably would be unable to control himself adequately outside of an institution. As a matter of fact, he was sent on trial visit on one occasion. However, he returned to the hospital in ten months. His treatment consisted of extensive psychotherapy. His reaction to treatment has not been satisfactory.

Regarding the abnormality of the E.E.G. in these two cases, Case No. 1, who never had an epileptic seizure revealed sharp and slow waves which were indicative of seizure activities. Case No. 2, who had one seizure, showed slow waves at 5 per second in all leads.

Generally speaking, in spite of some "excellent" results which have been reported regarding the therapeutic possibilities with sociopathic personalities, in special colonies organized on psychiatric principles rather than penal principles, the prognosis appears to be guarded, especially when the family's tolerance has been exhausted. Yet early recognition of psychopathic tendencies may lead physicians to adopt effective therapeutic steps without wasting time.

Mayer-Gross expressed the theory that personality changes associated with gross damage to the hypothalamus are of a rather limited kind and cannot cover the whole range of sociopathic personality as clinically observed. Actually recent studies on the Ascending Reticular Activating System and noted E.E.G. changes after activating or inhibiting the system, question the theory that morbid changes in the brain are to be called into account for all cases of psychopathy.

MEDICAL REPORTING AWARD

The Revere Annual $1,000 Award will go to the senior author of the original paper published in the Journal of New Drugs for the coming year which is judged to be of greatest importance to the medical profession. Papers for this award—which is to encourage and promote excellency in medical reporting of clinical studies—must be submitted to: Editor, The Journal of New Drugs, 660 Madison Avenue, New York 21.

EMOTIONAL MATURITY AND NORMALITY

• **Professional workers in mental health tend to stress and be concerned with the abnormal and maladjusted. The author believes that more attention should be focussed on the forces within the personality enjoyed by the normal person—as a key towards achieving a more mature personality for all society.**

SHELDON W. WEISS, Ph.D.

The twentieth century has witnessed meteoric advances in science and technology. With the advent of atomic and hydrogen bombs, man stands on the threshold of unleashing such tremendous forces of energy that several decades ago could be fantasized only by fiction writers and dreamers. Yet, with all of this advance in physical science and knowledge, what has man accomplished in terms of harnessing and controlling the forces of energy that lie within the human breast? What have we discovered in the realm of man's psyche that will permit him to live in peace and harmony with his neighbor, family and himself? For centuries, philosophers, theologians and poets have been searching man's psyche to fathom it's ideals and purposes. Today the mental health professions are constantly searching and investigating the behavior and thought of man to add more knowledge to the understanding of human personality. Most of these studies are based upon the research of the abnormal — the maladjusted, the mentally ill, the failures! But what of the "normal personality" — the adjusted, the emotionally mature individual, the successful! Perhaps we might focus attention on those forces which contribute to a more balanced approach and understanding of man's growth and development. Let us briefly delve into the concept and nature of normality and emotional maturity.

Normality is first a kind of mathematical construction based upon statistical averages of large and small groups of people in regards to some variable or entity. Although statistics are helpful in the determination of "norms" and provide us with valuable estimates and ranges, individual functioning is often more cogent and desirable than a statistical average. Drug addiction and alcoholism are not normal from any standpoint of good health despite their seeming increase and distribution within the population. Normality as such is never complete and is dependent many times on only relative approximation.

Facets Of Normality

In discussing normality, many facets must be considered. There is the question of physical normality — the absence of physical disease; the presence of healthy structure and physiological function. There is also the factor of intellectual normality and the capacity for intellectual growth and development. Normality must assume a relative freedom of the individual from crippling neurotic or psychotic symptomatology.

In addition and perhaps one of the most important rubrics in the concept of normal-

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ity is the presence of emotional maturity. By this encompassing term we imply the ability to be firmly rooted in reality, dealing with the actualities of one's environment rather than being influenced by wishes, reveries or fantasies. Young children often indulge their lives with fantasies and reverie. To them this is play, fun, but they have the ability to cease their play and fantasy at the end of the day and return to the real world about them. For adults to continuously emulate this kind of activity would be a sign of emotional immaturity — a kind of self-deception.

To be overly optimistic or too pessimistic, despite the actual facts and circumstances, would be another indication of emotional immaturity. Emotional maturity implies the ability to utilize long-term values instead of seeking the immediate, short-term, usually short lived, goals; immediate satisfaction may be delayed or postponed in favor of future gratification and more lasting pleasure.

That Healthy Adult Conscience

Included in the concept of emotional maturity is the development of a healthy adult conscience that is neither unduly strict nor too lenient and not inappropriate or immature; a conscience that is not based on threats, irrational guilt feelings or childish fears, but on real dangers and ethical, moral standards. To be in possession of a mature, adult conscience, one should be able to have satisfaction in keeping with real possibilities of one's circumstances with truly adult ideals, standards and values as guides to conduct. One should strive continuously to refute all childish narcissism, vain pride and egocentricity and not permit the using of others for one's own selfish interests and exploitation.

One of the end-goals of the normal development and growth of the individual is the achievement of independency— not the negativistic, stubborn defiance of authority or the withdrawal from group interaction and cooperative effort — but emotionally mature independency. A healthy independency is one where the individual has the necessary confidence and self-containment that permits sound, individualistic judgment and action — to be able to stand on one's own feet — chained neither to strict social conformity nor tied to the emotionally unsevered umbilical cord of one's parents. The truly independent individual can take advice and guidance from others, at the same time formulating his own path of action based upon the sound advice of others tested against one's own conclusions and experiences. This individual can take responsibility for his actions and behavior, neither having to be dictatorial and autocratic nor completely subservient or overly compliant.

A Reasonable Dependency

In addition to a wholesome spirit of emotional independency, the mature individual possesses the capacity to allow a reasonable dependency on others. This is a far cry from the clinging vine individual or the person who is in a state of constant indecision requiring continuous advance and direction from others. Reasonable dependence refers to a mature, cooperative relationship between people; the capacity to heed wise counsel when one is in need of such; the capacity to be able to receive love from others and to return it. Almost all interhuman relationships involve a blend of dependence and independence, what may be called an interdependence — a cooperative, symbiotic give-and-take relationship between the individual and his society.

The emotionally mature individual has the ability to use healthy mechanisms of defense in controlling unacceptable, antisocial ideas, actions and impulses. He does not rely upon self-punitive devices to torture himself for his guilt feelings which in the end may lead to strong feelings of depression and withdrawal from interpersonal contact. The mature person is able to face himself with reasonable objectivity and resolve most conflicts with appropriate action and with a minimum of disturbance and personal discomfort.

Another characteristic of normal personality development is that involving sexual

maturation. In the mature person this may be seen in the development of a healthy interpersonal relationship with a partner of the opposite sex in the state of marriage and accompanying child rearing. Sexual maturation precludes the individual's satisfaction with his own gender and conception of his sex-role identity. The mature man can accept this masculinity and function comfortably among his fellows. For the mature woman there is no need to reject her femininity or possess strong resentment toward men. Each of the sexes comprehends that there is no intrinsic superiority of one sex over another and each can respect, share and contribute to the satisfaction and comfort of the other.

Adjustments Towards Vocational Pursuits

Another criteria of emotional maturity concerns the individual's attitude and adjustment towards his vocational pursuits. A good work history implies many of the aforementioned characteristics as well as the willingness and the ability to accept responsibility and to be properly motivated for achievement and aspiration; the ability to achieve financial solvency without permitting material gain to serve as an end in itself instead of a means to a more mature and satisfying end.

There are many other criteria that could be added to those already enumerated such as the acceptance of one's self and the ability to live within one's own limitations and potentials; the development of a sense of achievement and need for recognition within the areas of one's competency and finally an appreciation, need and desire for a frame or orientation and an object of devotion beyond oneself — the development of the "inner-voice," the spirit, faith!

All of these criteria aid in the understanding of the concept of maturation and normalcy. We all possess in varying degrees these various characteristics — there is no isolated group of totally "normal" or fully mature individuals. Maturity and normality in a way are abstract ideals — targets or goals to strive and to emulate. It is also a process involving dynamic force and change. With proper understanding of the positive and negative signposts on the path of maturation, we will be more enabled to make the journey and approach the goal.

A.M.A. ANNUAL MEETING

As everyone should know by now, the American Medical Association's Annual Meeting will be held in New York City, June 26-30. We are fortunate in Delaware to be close to this largest and most comprehensive of medical meetings. It should be possible for almost everyone to attend, if only for a day. We'd suggest that you check the program or the J.A.M.A. for papers interesting to you.

PERITONITIS

Secondary to Spontaneous Rupture of Pyometra

• **The advent of chemo-therapy and antibiotics has changed the incidence of pyometra, often linked with malignant diseases of the cervix.**

VINCENT L. SY, M.D.

A CASE REPORT

Pyometra, an accumulation of pus in the uterus, occurred in 31 patients with non-treated carcinoma of the cervix and in 51 patients treated for carcinoma of the corpus uteri, of the 208 cases of pyometra reviewed by Henricksen.[1] The incidence of pyometra was higher before the chemo-therapy and antibiotics era; from 1812 to 1920 there were only 14 cases reported, which were fewer than the cases presented in the literature. Henricksen[1] reviewed 208 cases of pyometra associated with malignant diseases of the cervix; a case of intra-peritoneal rupture with death from acute peritonitis and 60 cases were caused by pyometra from the 157 patients that were autopsied.

Pedowitz and Felmus[2] reported also 35 cases of ruptured adnexal abscesses with general peritonitis.

From 1949 to 1959, of a total of 102 cases of carcinoma of the cervix treated at the Milford Memorial Hospital, only one case of pyometra was diagnosed after an abdominal hysterectomy. Here is presented a case of pyometra with spontaneous intra-peritoneal rupture secondary to untreated carcinoma of the cervix with recovery from peritonitis.

A Negro woman, 74, was admitted on January 25, 1960 for the first time with the CC of abdominal pain and vomiting. The patient had apparently been well until the day before admission when she started to have abdominal pain continuous in character, sudden in onset without losing consciousness and had been almost continuous up to the time of admission. The pain was markedly localized in the lower abdomen and flanks. Vomiting started after the onset of the pain, not projectile in character. At the time of admission the pain was more or less generalized throughout the abdominal cavity.

The patient had no history of peptic ulcer, no vomiting before the onset of pain, but was constipated often, had no previous hospital admission. Family history was non-contributory.

Physical Examination

This showed R 24, P 92, B.P. 94/58, in a fairly developed and fairly nourished patient in distress. Skin was dehydrated. Chest showed few moist rales on both lung bases. Heart—normal sinus rhythm, no murmurs. Abdomen—slightly distended, tender all over, maximum at the lower quadrants with rebound tenderness. No bowel sounds were heard. Both flanks were also very tender. Vaginal examination showed disfigured cervix; vaginal cul-de-sacs were indurated; the uterus could not be examined.

Laboratory Examination

This showed 12 grams, 81% hemoglobin and 42 hematocrit. Urine showed one plus

Dr. Sy, formerly resident at Milford Memorial Hospital at the time of this writing, is a urologist and staff physician to Alexian Brothers Hospital, Elizabeth, N. J.

albumin, 4-6 rbc and 25-35 wbc, sp. gra. was 1.025 and acid reaction.

Patient was taken to operating room for exploratory laparatomy on the day of admission. Under general anesthesia, the abdominal cavity was opened and explored. It was found to contain about a liter of pus. The stomach, gallbladder, duodenum, appendix and both tubes were found to be normal. The uterus was enlarged and on the posterior surface there was a rupture measuring about 0.5 cm. in length exuding pus material. Culture and sensitivity study were taken from the pus and the cavity was cleaned and drained. After closing the wound, the cervix of the patient was dilated and a biopsy was taken. Her post-operative course was uneventful. She received chloramphenicol intravenously for seven days post-operative and received x-ray treatment. An intravenous pyelography was done after operation and showed right hydronephrosis and a normal function of the left kidney.

Clinical Diagnosis

Acute peritonitis secondary to ruptured pyometra, carcinoma of the cervix, stage III.

Anatomical Diagnosis

Pyometra, streptococcus squamous cell carcinoma of the cervix.

Discussion

Before 1947, treatment of incision and drainage was accompanied by high mortality, but since the advent of che-no-therapy and antibiotics the outlook has changed. Maintenance of the patency of the cervical canal, whether surgical or medical intervention is done, is to be kept in mind to prevent pyometra; uterine sounding is almost a routine for gynecological examination and follow-up cases of surgical or medical cervical pathology. Bacterial culture and sensitivity tests cannot be overemphasized; for tuberculosis is often discovered by smear and culture. Two out of the 133 cases of Carter,[3] showed tuberculosis. With the advent of streptomycin, isoniazide and PAS it has become much simpler. Post-menopausal and inflammatory stricture should be kept in mind as a cause of pyometra.

REFERENCES

1. Henricksen, E., Pyometra associated with malignant lesions of the Cervix, Am. Journal of Obst. and Gynecology, 72: 884-895, 1956.
2. Curtis, Textbook of Gynecology, 3rd Edition.
3. Carter, Bacteriologic and cultural study of pyometra, Am. J. Obst. and Gynecology, 62: 793-805, 1951.

PREVENTIVE MEDICINE IN WORLD WAR II

Volume V, of the sixteen volume series "Medical Department, U.S. Army, in World War II," will be published in June and will be devoted to communicable diseases transmitted through contact or by unknown means. The book may be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D.C. at $6.

EMOTIONAL RESPONSES OF SCHIZOPHRENICS TO SELECTED MUSICAL COMPOSITIONS

• "Music hath charms to soothe the savage breast, to soften rocks, or bend a knotted oak."
Congreve

IRWIN G. WEINTRAUB, PH.D.

The general purpose of this study is to investigate some of the emotional and interpersonal reactions to music of schizophrenic patients in a mental hospital.

Historically, there has been interest in the effect of music upon the mentally ill since Biblical times. Initial experimentation with music was primarily concerned with evaluations of structural forms that evoked consistent emotional reactions in all people. Interest in experimentation in music therapy has only recently begun. A paucity of experimental data exists while subjective appraisals are widely published. Positive clinical evidence reinforces the need for experimental confirmation of theory.

The method employed in this study was to play twelve recorded musical selections (two were repeated) over a high fidelity, twin speaker phonograph to groups of five schizophrenics, each patient unknown to the others. Mood reactions and musical preferences were obtained on forms having a checklist (love, anger(sad, happy, calm religious, victorious, nothing, do not know) and an open-ended question. For interpersonal attitudes, forms given to the subject's pre- and post-exposure to the music were checked yes, no, or cannot say, to the question, "Would you like to be friends with anyone in this room?" In evaluating this area, one half of the population was exposed to the music with specific conversational topics interjected after each selection; the other half listened to the music only. The sample consisted of 103 schizophrenics equated for sex, race, age, and educational level.

Three basic hypotheses were evaluated:

1. There will be a statistically significant consistency in the emotional reactions of a schizophrenic sample to selected recorded compositions of music to which the group has never been exposed.

This was partially supported by the data since no one reaction achieved statistical significance by itself and only six musical selections resulted in greater statistical significance for the mood reaction of highest frequency.

2. There will be a statistically significant difference of emotional reactions between each schizophrenic subtype sample to selected recorded composi-

tions of music to which each group has never been exposed.

This was not confirmed.

3. There will be a significant change of social attitude, based upon the music alone, within the schizophrenic sample who are exposed to the selected recorded compositions.

Minor change occurred and, therefore, this was not supported.

The following facts were also noted:

(1) A response pattern to differentiate each subtype was not established because of insufficient confirmation of the basic hypotheses; (2) The investigator, being also perceived as a hospital authority, positively biased the musical preferences; (3) Interpersonal attitude changes occurred most with the sample exposed to the musical selections and conversation; (4) Mood reactions of the schizophrenic sample were very similar to the general anticipated mood reaction of a normal sample.

Application of the experimental results may be summarized as follows:

1. Music mood as determined by normal group appraisal can be used to produce a similar mood reaction in the majority of schizophrenics.

2. Music alone may establish a nonverbal bridge of interpersonal contact with schizophrenics but it does not significantly alter their interpersonal attitudes. This change requires other forms of therapy.

3. Valid music preference cannot be established for the majority of schizophrenics by only requesting their likes and dislikes.

4. Common characteristics of the music found significant suggest that:

(a) The rhythmic accent should be easily recognizable.

(b) Melody should be captivating, easy to recall.

(c) Instruments employed should be most commonly identified with mood being conveyed.

(d) Structural complexity of the compositions should be geared to the subjects' musical sophistication if the desired mood reaction is to be elicited.

Essentially, music can be controlled to produce a mood which can serve to establish contact with schizophrenics in order to pave the way for deeper therapeutic measures.

ACKNOWLEDGEMENT

The author wishes to thank Dr. M. A. Tarumianz, Superintendent, Delaware Mental Health Program and Dr. F. A. Freyhan, Director of clinical studies, National Institute of Mental Health, for assistance with this article.

CEREBRAL PALSY BOOKLET

"*Growing Up—Cerebral Palsied Children Learn to Help Themselves*" is a new booklet which will serve as a guide to healthy parental attitudes. Copies of the booklet may be procured through the Delaware Chapter of the United Palsy Association, 1324 North Market Street, Wilmington.

Editorials

• **"The fear of death is more to be dreaded than death itself." Publius**

KOMM, SÜSSER TOD

Johann Sebastian Bach

"Allow me the dignity of dying in my own bed—don't take me to the hospital." So said an 85-year-old patient whose son wanted "everything to be done."

This touches on the old subject of how far must we, as physicians, go in an effort to prolong life. Is it essential that cardiac patients die in sinus rythm and that those with metabolic disorders die in electrolyte balance?

In an article entitled, "*A Pathologist's Experience with Attitudes Toward Death*,"* Dr. Alfred A. Angrist, professor and chairman, Department of Pathology, Albert Einstein College of Medicine, discusses the subject to include clinical, psychological, and religious aspects. He points out that the inability of the family to accept death as a fact is the usual mechanism behind refusal of permission for post-mortem examination. Death is a natural phenomenon; fear of death can attain gigantic proportions. The pros and cons of telling a patient that he has incurable cancer are touched upon; Angrist believes that we must individualize but, in general, do not tell unless there is a good reason to do so.

Regarding care of the dying, he warns of the medical, legal, and moral complications of euthanasia and advises physicians to stay clear. It would be too difficult to draw the line. He is against capital punishment as "degrading."

"One can also properly raise the question whether the physician is justified in prolonging life unduly when all hope is gone and suffering is the only lot remaining. Should he continue transfusions, infusions, potent drugs and oxygen merely to lengthen life by prolonging the act of dying? Such a meaningless victory can result in untold anguish and insupportable financial burdens. Again the physician should not assume an omniscience he does not possess. Death itself can be a comfort and a physician today is sometimes capable of withholding for days, weeks or months, that one comfort. He may be bringing death into life, prolonging death, not life, and in so doing failing in his obligation to curtail suffering."

Dr. Angrist closes with a prayer:

"Teach me to live that I may dread
The grave as little as my bed."

MUSIC HATH CHARMS TO SOOTHE A SAVAGE BREAST—

Elsewhere in this issue Weintraub has reported his observations on the emotional response of schizophrenic patients to music. At a recent concert given by the Boston Symphony Orchestra with an audience of about eleven thousand persons, the program consisted of compositions by Dello Joio, Mendelssohn, and Beethoven. What a wonderful opportunity this would have been to further Dr. Weintraub's observations!

*Rhode Island Med. J., 43:693 (Nov.), 1960.

President's Page

Samuel C. McGee

QUO VADIS?

Statisticians report that the average family doctor is in his forties, does private practice and derives his income from fees. He treats 26 patients a day, spending about 10 hours on office, home and hospital calls. Less than half of the total medical profession classifies itself as general practitioners without certification or identified interest in a speciality.

The rapidly expanding body of knowledge in medicine, the unbelievable advances in sciences and technology, have forced specialization on us. There is no turning back; even the most able and energetic mind cannot be informed on all aspects of medicine. The responsible practitioner must depend upon specialists to meet adequately the needs of the patient in "total care." The specialization which is forced upon us calls for guarding against segmentation and loss of humanism in approaching the problem of the patient. The total clinical appraisal by someone remains as necessary as ever.

What is required of medicine is a reflection of the changing requirements in other phases of scientific endeavor in our society. The 'help wanted" columns of today attest the numerous disciplines, skills and job classifications which were unknown a generation ago. Have you more than a foggy notion of the meaning of the following terms?

Systems Synthesis and Analysis, Microminiaturization, Geometrical and Physical Optics, Circuit Synthesis and Implementation, Intelligence Processing Systems, Heuristic Programming, Artificial Intelligence Studies, Polaris Re-entry Program, Astro-tracking Systems, Electron Optics, Vacuum Technology Development, Solid State Precision Components, Applied Servomechanisms, Heterogeneous Catalysis, Radar Photo Analyzation, Human Factors Science (does this include psychosomatic medicine?)

If one is interested in a new sphere of work activity, some of the following job designations can be considered (it seems that employers are begging for men and women with these skills). Operations Analyst, Digital Computer System Engineer, Electrochemist, Reliability Engineer, Hydrodynamicist, Aerodynamicist, Antennae Engineer, Consultant in Satellite Intercontinental Communication, and Missile Loads Engineer.

Those having an itch to write should consider such possibilities as Proposal Writer, Publication Engineer, Technical Program Analyst, Design Evaluator, or Electronics Manual Writer. It seems only fair to point out that writers must be able to communicate with top management and customers.

The practice of medicine is not so bad after all!

In Brief

Many Things To Many People

This theme soon to appear in leading national magazines, will highlight a public relations series, sponsored by Mead Johnson Laboratories on the role of the physician in the life of the patient. The copy will emphasize that "the system allowing free choice of physician is the key to continued excellence in medical care."

Evaluation Clinics

A new dimension added to the patient-aid program of the National Foundation will tackle birth defects and arthritis from a national and local level. Centers will operate fulltime and provide treatment and care for both in-patients and out-patients in collaboration with practicing physicians. The fact that arthritis sufferers number in the millions and that each year seven times as many Americans are born with birth defects as were stricken (on the average) by polio a few years ago, has been the basis for this expansion. Originally limited to cases of hydrocephalus, spina bifida and encephalocele, patient-aid for birth defects will now encompass *all* birth defects.

Successful Treatment For Hypertension

Percentages for successful treatment have risen from 5% of cases in 1951 to 95% in 1961. Physicians attending the Symposium on Hypertension, sponsored by Hahnemann Medical College, were told that three drugs in particular have been responsible for these strides —the most useful being guanethidine, which acts at terminal nerve endings to slow down the release of norepinephrine, which raises blood pressure. Statistics show that "do it yourself" blood pressure recordings by patients work well in some instances.

Brief Briefs

The Boston area claims the highest ratio of physicians to population among metropolitan areas of 1,000,000 or more, according to a Public Health Service survey. Boston's ratio in mid-1959 was 207 active non-federal physicians per 100,000 people.

A new method to determine pregnancy within 90 minutes is claimed by Uppsala Academical Hospital, Sweden. A team of doctors have made 1200 tests, all of them accurately diagnosing pregnancy. The method is reported to be less expensive and more accurate.

Radio-Electrocardiography

Demonstrations of a new, simplified radio-electrocardiograph system known as RKG-100, which can take electrocardiagrams while patients are exercising, were presented at the 10th Annual Convention of the American College of Cardiology. This may solve the medical mystery of why some apparently healthy patients have suffered cardiac attacks shortly after a standard electrocardiogram had revealed no abnormalities. Defects frequently are revealed only while the heart is responding to the stress of exercise and not during conventional examination. The lack of any connective wiring between a transmitter which broadcasts heartbeats and a receiver as far as 500 feet away permits the recording instrument freedom of movement previously prohibited with EKG equipment.

Local Product

A portable oxygen unit which supplies 51 minutes of the important gas for use in case of heart attack, electric shock and other emergencies requiring application of oxygen, is now available within the price range of most individuals who require emergency oxygen. Metro, Inc., of Wilmington, Delaware manufactures the "NCG—Metrox" which contains 305 litres of oxygen—an adequate supply until professional help arrives; is equipped with a regulator which can be adjusted to supply from three to twelve litres per minute; and a plastic mask with intake and exhaust valves.

Health Maintenance

The major role of the American physician may become maintaining the good health of "well patients." The National Diseases and Therapeutic Index says that data from 2700 doctors during 1960 indicated that one out of every five contacts between U.S. patients and physicians in private practice *did not involve actual sickness or injury*. Prominent causes, comprising 18% of all patient visits were: prenatal care, inoculations and examinations. In total they accounted for more trips to doctors than either of the two leading disease categories, respiratory and circulatory disorders.

Space Capsules

Interested in hospital automation, the Hospital Supply Corporation demonstrated what it hopes will be the forerunner of an electronic system allowing a floor nurse to check the temperatures and respiration of all her patients by tuning in on a central receiver to tiny radio transmitting capsules attached to each patient.

Personal Glimpses

Edgar R. Miller, M.D., and his wife Elizabeth Miller, M.D., have returned to Wilmington on furlough from the mission field in Nepal where they have been medical missionaries since their retirement from practice in 1956 . . . Lewis B. Flinn, M.D., and Mrs. Albert Gelb were named to the Board of Directors for a three year term by the Welfare Council of Delaware . . . Charles K. Bush, M.D., addressed a group at Grace Methodist Church, Millsboro, on the topic "*Alcoholism—A Modern Disease*" . . . W. O. LaMotte, Jr., M.D., and Floyd I. Hudson, M.D., were named members of the advisory committee to the division of aging of the State of Delaware . . . Drs. William T. Hall, George J. Boines, S. Ward Casscells, Arthur J. Heather, Alfred R. Shands, Jr., and William J. Vandervort were panelists in a public forum on arthritis sponsored by the Delaware Chapter, Arthritis and Rheumatism Foundation . . . Davis G. Durham, M.D., spoke at a meeting of the Delaware Licensed Practical Nurses and showed a film on "Project Hope, the Mercy Ship" . . . Robert L. Dewees, M.D., presided at the Delaware Heart Association's annual meeting, Lemuel C. McGee, M.D., introduced the speaker; Drs. J. Richard Durham, Charles Levy, Joseph M. Messick and Lemuel C. McGee were re-elected directors for a three year term . . . Lemuel C. McGee, M.D., will be a speaker at the third Pre-Convention Session on School Health held June 25 at the Park Sheraton Hotel, New York City, the theme—"*Health of the School Personnel*" . . .

Auxiliary Affairs

THIS AUXILIARY'S CONTRIBUTION TO A.M.E.F.

Last year the Women's Auxiliaries to State Medical Societies from all over the United States contributed a total of $175,000 to the American Medical Education Foundation. This was an increase of 825% since the year of its inception in 1952. All members of the auxiliary can indeed be proud of that record and yet we dare not rest on our laurels, for we are still far from our ultimate goal.

Last year Delaware contributed a total of $2.35 per member and this year we hope to increase that figure but it will still be short of the amount needed, which is estimated at $5.00 per member. Even with this figure we ranked eighth among all the states in the amount given per member. Where will we be this year? We can only hope to be much higher and continue trying until we reach the top. Even then there will always be the problem of remaining at the head of the list.

This is probably the most worthy goal we could ever try to attain for we are helping to keep our medical schools on the free basis on which they began. Each year the schools attempt to improve their training, which can be done only at considerable expense. Unless we choose to allow them to be government subsidized and ultimately government controlled, we must continue and even greatly increase the amount of help we are now giving.

The money given to the medical schools by the American Medical Education Foundation has absolutely no strings attached and each school may use it in any way it sees fit. Thus you find some using it for plant, some for salaries, and some for scholarship, etc. This is very important to them, for such money is rare indeed.

We now have a total of eighty-five medical schools in the United States and nearly all of them are operating at a deficit. Even though the amount contributed by the American Medical Education Foundation is only a small part of their total budget, it is still very important.

Let us all continue to do better each year and see if we can keep our schools free in a free democracy.

Mrs. A. M. Devenis, *Chairman*,
A.M.E.F. Committee

SPECIAL AUXILIARY SUBSCRIPTION RATE FOR THE A.M.A. NEWS

The Board of Trustees of the A.M.A. has approved a special price of $1.50 per year, which is 50% of the regular rate, for the A.M.A. NEWS to be sent to the home address of members of the Woman's Auxiliary, as well as all wives and mothers of physicians.

The copy being addressed to the physician cannot be transferred to the wife or mother, as the copy mailed to the physician must be sent to the professional mailing address, as it is the address control for the master list of physicians maintained by the A.M.A.

Therefore, the subscription must be ordered by the individual auxiliary member and must be mailed to the home address.

A special subscription order blank for the Woman's Auxiliary has been prepared and is available in quantity to each local auxiliary.

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Complete Cholesterol Depressant Menus and Recipe Book

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Now available for use in your practice from The Wesson People . . . easy-to-use manual of 40 pages, including all necessary diet instructions . . . menus, recipes, shopping and cooking guidance . . . all worked out for you . . . so arranged and printed that you have only to check the desired daily calorie level before giving the book to your patient.

You will find this book invaluable for treating patients with elevated serum cholesterol.

Complete menus for 10 days enable you to prescribe diets which are appetizing, nutritiously adequate and which can exert cholesterol depressant activity. Special attention has been given to constructing the menu patterns so that they adhere as closely as permissible to the patient's normal eating habits.

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Weight control is achieved as each day's menu is given at 3 calorie levels—1200, 1800 and 2600 calories. You prescribe the level most desirable and modify as desired.

Variety and appetite appeal for patient are built into the menu plan to an extent not previously accomplished. Alternate choices for main dishes minimize monotony, encourage the patient to follow closely the menu plan you specify.

Complete recipes—65 in all—are included to assure that the specified menus provide prescribed levels of calories, the pre-determined ratio of poly-unsaturated to saturated fat, plus essential nutrients.

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A high degree of satiety is achieved even at the lower calorie levels, because Wesson provides an unexcelled source of concentrated, slow-burning food energy.

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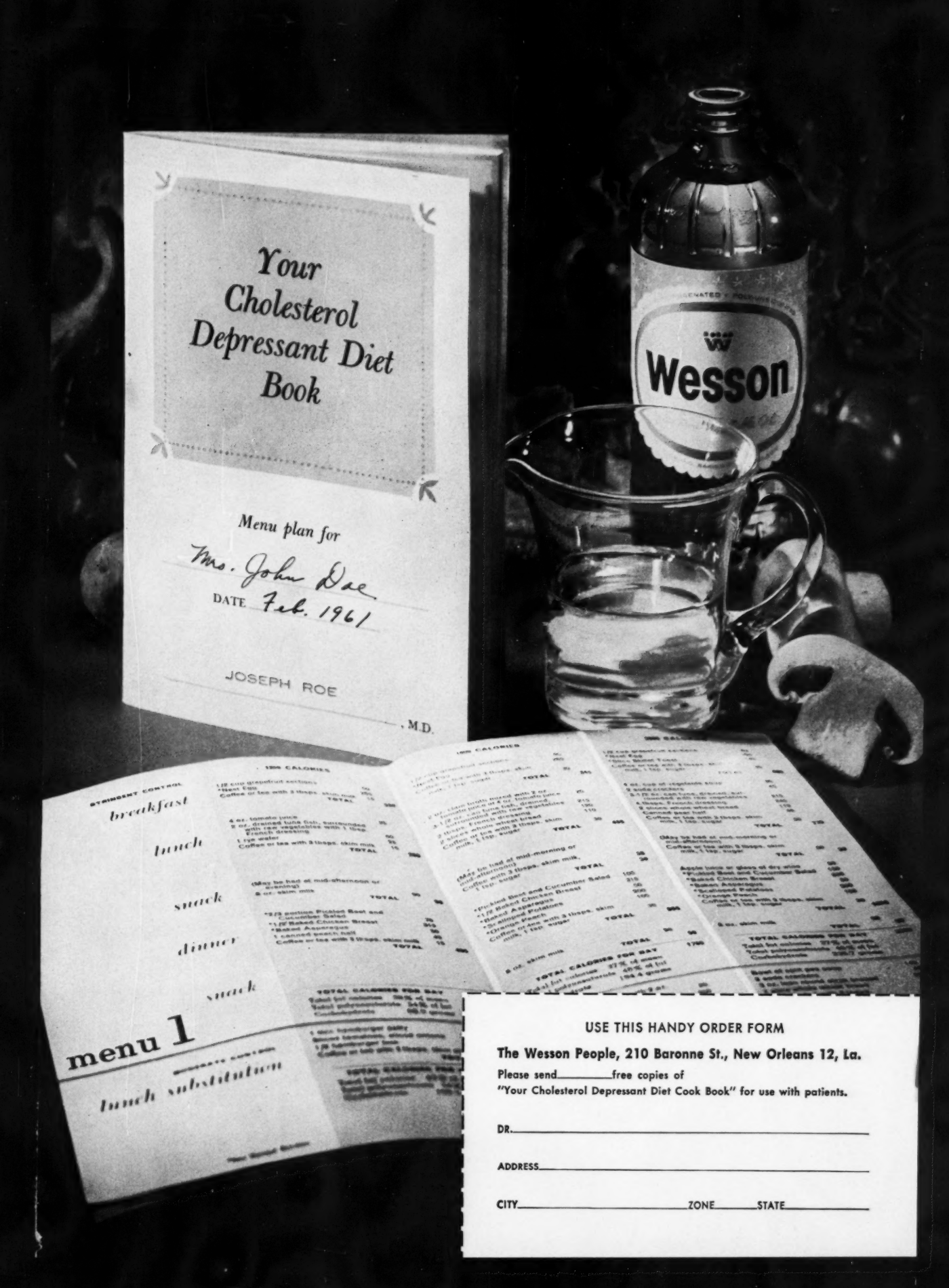
Poly-unsaturated Wesson is unsurpassed by any readily available brand, where a vegetable (salad) oil is medically recommended for a cholesterol depressant regimen.



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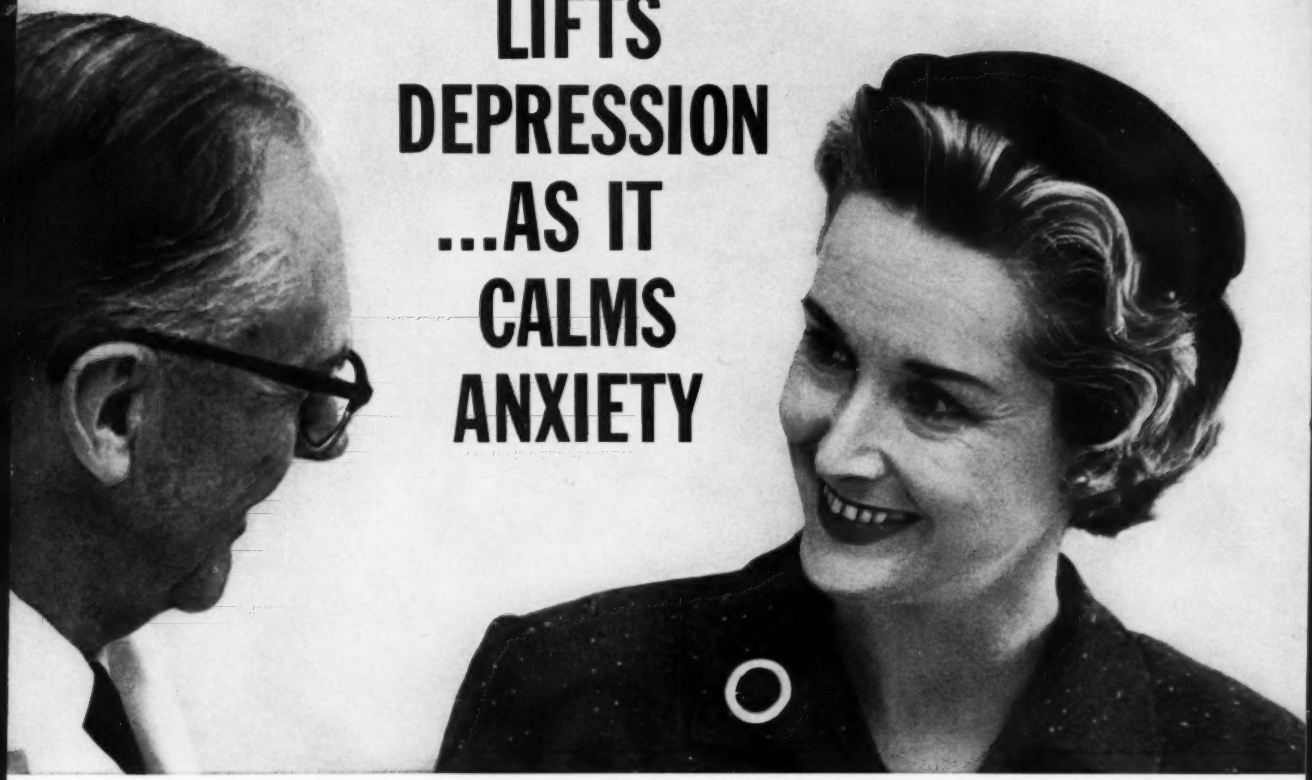

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SPECIAL PROBLEM: EDEMA DUE TO SODIUM AND WATER RETENTION

In patients with edema induced by the earlier corticosteroids or from other causes, diuresis and sodium loss often occurs with triamcinolone. (Fernandez-Herlihy, L.: *M. Clin. North America* 44:509 [Mar.] 1960.)

SPECIAL PROBLEM: APPETITE STIMULATION AND WEIGHT GAIN

In contrast to the heightened craving for food sometimes seen with other corticosteroid compounds, appetite was unaffected by triamcinolone. (Cahn, M. M., and Levy, E. J.: *Am. Pract. & Digest Treat.* 10:993 [June] 1959.)

SPECIAL PROBLEM: HYPERTENSION

When ARISTOCORT was given to patients with dermatologic disorders for long periods, there were no significant changes in blood pressure. (Kanof, N. B.; Blau, S.; Fleischmajer, R., and Meister, B.: *A.M.A. Arch. Dermat.* 79:631 [June] 1959.)

SPECIAL PROBLEM: PSYCHIC STIMULATION AND INSOMNIA

Ideally, corticosteroid therapy ought not to add to the psychic component in dermatologic disorders, nor induce insomnia which will intensify the patient's itching and irritation. ARISTOCORT Triamcinolone has been singled out for its remarkably low incidence of psychic irritation and insomnia. (McGavack, T. H.: *Nebraska M. J.* 44:377 [Aug.] 1959; Freyberg, R. H.; Berntsen, C. A., Jr., and Hellman, L.: *Arthritis & Rheumatism* 1:215 [June] 1958.)

SPECIAL PROBLEM: SEVERE CARDIAC DISEASE

Elderly patients with pulmonary emphysema due to impending heart failure who required corticosteroid therapy showed that triamcinolone could be employed with benefit and relative safety. (McGavack, T. H.; Kao, K. Y. T.; Leake, D. A.; Bauer, H. G., and Berger, H. E.: *Am. J. M. Sc.* 236:720 [Dec.] 1958.)

Precautions: Collateral hormonal effects generally associated with corticosteroids may be induced. These include Cushingoid manifestations and muscle weakness. However, sodium and potassium retention, edema, weight gain, psychic aberration and hypertension are exceedingly rare. In the treatment of allergic and inflammatory dermatoses, dosage should be individualized and kept at the lowest level needed to control symptoms. Dosage should not exceed 36 mg. daily without potassium supplementation. Drug should not be withdrawn abruptly. Contraindicated in herpes simplex and chicken pox.

Supplied: Scored tablets—1 mg. (yellow); 2 mg. (pink); 4 mg. (white); 16 mg. (white). Also available—syrup, parenteral and various topical forms.

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1. The Composition of Milks, Publication 254, National Academy of Sciences and National Research Council, Revised 1953.
2. Brown, G.W.; Tuholski, J.M.; Sauer, L.W.; Minsk, L.D., and Rosenstern, I.: J. Pediat. *56*:391 (Mar.) 1960.

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